

From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 08:32:14 1994
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: 160 Metre mobile whips
Date: Sun, 18 Sep 94 06:19 CDT
Message-Id: <E9I61928.E9I61949@mail.admin.wisc.edu>

to: boatanchors@gnu.ai.mit.edu

Hello Bob, K0KR

Re. 160 antenna corona + loading coils;

Yep, I've seen the basketball sized corona. In fact, some guys claimed the discharge from the antenna tip was a relative measure of the quality of the loading coil. Of course, the corona tests were done sans cap hats, and usually with whip top sections that were specifically sharpened to encourage corona. I kinda think some of the guys actually did it to freak out people more than anything else; just like kids with firecrackers, they'd put on thier little light shows at hamfests, drive-in movies, parking lots, etc. Why else did they keep a flourescent tube in the trunk?

Re. the antenna design you're using;

A base loaded whip has definite mechanical advantages, but our guys tended toward the center loaded variety, in order to raise base impedance as much as possible. Forms were always polystyrene for low loss, and the winding was NEVER close wound; close winding always lowered Q and dramatically increased losses, especially when your coil got wet. BTW, it was just plain common sense that you NEVER used a bumper mount for a 160 antenna, ESPECIALLY with a base loaded 160 antenna; popular lore claimed that using a bumper mount put too much of the car body in the antenna's field, increasing losses and killing efficiency, not to mention putting too much body metal too close to the loading coil, killing it's Q.

Most of the folks I knew drove real beaters, and they weren't adverse to odd antenna mounting techniques. Barry, W9UCW, used to drive an old Plymouth that had a surplus porcelain antenna base, about 4" in diameter, in the center of the trunk lid! The base of the antenna was about 3' off the ground, and 3' up from the base was a huge loading coil with a hat on top, and from there was another 3' of whip, bearing ANOTHER hat! Bolted to the inside of the trunk lid was a quite elaborate motor tuned antenna matching network.

These outfits were ugly as homemade sin, but they got results!

A couple of years back I decided to try 160 mobile again. This time I had a Kenwood TS-140 and a Chevy pickup truck.

I foolishly ignored most of the old wisdom. I used a mount on the side of

the cab, and initially used a closewound coil, 3" in diameter, using small diameter wire (#26), and wound on PVC pipe. The whole coil was sprayed with a couple of coats of Krylon to waterproof it.

Not good.

The antenna worked fairly well, but during initial tuning the coil losses got so high that the Krylon bubbled, clouded, and cooked. A week's additional use caused the Krylon to char, destroying the coil. Well, back to the drawing board...

The new design was larger; 4" dia. and about 14" long. The form was polystyrene instead of PVC, and the winding was spaced one wire diameter by winding it bifilar with large diameter monofilament fishing line. Again, the whole thing was sprayed with Krylon.

It took awhile to tune the coil by pruning turns, and dusk fell as I worked. Just as I got it tuned to the part of the band I wanted it in, I happened to glance up at the unhatted tip; I grinned and knew I was on the right track as I saw a feather of corona stand straight up from the end, faintly hissing in the darkness...

There's still a few more changes I can make on the next version, but I think the ol' Chicago gang would approve of the way this design is progressing.

73's,

Tom "Mr. T." Adams, K9TA

From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 16:16:40 1994
Date: Sun, 18 Sep 1994 13:02:43 -0600
Message-Id: <199409181902.NAA21996@Freenet.HSC.Colorado.EDU>
From: al511@Freenet.HSC.Colorado.EDU (Robert Neece)
Subject: Re: 160 Metre mobile whips

Mr. T, K9TA, raises more interesting and valuable 160 mobile antenna points:

> A base loaded whip has definite mechanical advantages

The mechanical advantages have, over the long haul, proved to be more important to me personally than the ostensible electrical advantages that center or top loading offer. The mechanical advantages are the only reason I use base loading.

>but our guys tended toward the center loaded variety, in order to

>raise base impedance as much as possible.

I would do this, too, but for the mechanical disadvantages of this technique.

>Forms were always polystyrene for low loss, and the winding was NEVER
>close wound; close winding always lowered Q and dramatically increased losses,
>especially when your coil got wet.

Now we get into the interesting stuff. Air-wound coils, on a low-loss frame rather than a form, should be even better than ones wound on polystyrene, teflon, or Delrin. The theoretical superiority of air-wound coils is the impetus behind the "bug-catcher" style of open-frame, air-wound coil. PVC on the other hand, as Mr. T correctly observes, is one of the lossiest materials.

For years, I was a disciple of the philosophy that Mr. T espouses. The tenets of the philosophy are three: (1) use low-loss form material, (2) avoid close winding, and (3) the Q of the coil is improved by having the proper diameter-to-length ratio. The books say that a long, skinny coil suffers in Q. The books also say a large-diameter coil with few turns suffers in Q. The best Q is achieved with a length-to-diameter ratio of, say, 1.5.

So, one might reasonably ask, what caused me to fall away from the faith??? A friend of mine owns a couple of boatanchor Boonton Model 160 Q meters. We decided to *quantify* the difference in Q, and by inference in loss, between (a) an ideal bug-catcher coil, and (b) a "crummy" close-wound, long-aspect-ratio, PVC-form coil.

The results were a shock. The crummy coil was poorer in Q than the ideal coil by only a fraction. It has been years since we performed these experiments, so I am unable to relate the numbers from memory. Our firm conclusion, though, was that the improvement in Q (and, by inference, in efficiency) of a perfect coil was not enough to outweigh the substantial mechanical problems of the perfect coil.

Why might this be??? First, the loss of a second-rate dielectric such as PVC is indeed horrendous at VHF or even HF. But at MF, it is more a theoretical problem than a practical one. Second, within some practical limits, the differential in Q between perfect and merely ordinary coils is not as large as one might have thought.

As to the problems of close winding when the coil gets wet, Mr. T is absolutely correct. Colorado is usually dry. On the rare days when the coils gets wet, I wipe it with a towel!

>BTW, it was just plain common sense that you

>NEVER used a bumper mount for a 160 antenna, ESPECIALLY with a base loaded 160
>antenna; popular lore claimed that using a bumper mount put too much of the car
>body in the antenna's field, increasing losses and killing efficiency, not to
>mention putting too much body metal too close to the loading coil, killing it's
>Q.

Mr. T is 100% right! I am grateful that he mentioned this. My own antenna is mounted on a roof mount. I used to mount it on the top rear corner of a steel-top four wheel drive Scout. It worked fabulously. In my own experience, the degree of benefit obtained from avoiding a bumper mount is a large one indeed. Larger than the benefits to be obtained by center or top loading, or by using superior coil design. A bumper mount does not necessarily imply a bumper-level feed point, though. Even if the structure is affixed to the bumper, the *antenna* portion can be made to begin at roof level or above, which is what one wants. Feeding the antenna at bumper level makes the thing into a dummy load rather than a radiator.

Avoiding a low feed point is my secret to getting by with a coil that would not meet Mr. T's standards.

>Barry, W9UCW, used to drive an old Plymouth that
>had a surplus porcelain antenna base, about 4" in diameter, in the center of
>the trunk lid! The base of the antenna was about 3' off the ground

This is vastly superior to a bumper-level feed point. From a practical point of view, it might approach the performance of a roof mount.

> I foolishly ignored most of the old wisdom. I used a mount on the side of
>the cab, and initially used a closewound coil, 3" in diameter, using small
>diameter wire (#26), and wound on PVC pipe. The whole coil was sprayed with a
>couple of coats of Krylon to waterproof it.

>

> Not good.

>

> The antenna worked fairly well, but during initial tuning the coil losses
>got so high that the Krylon bubbled, clouded, and cooked. A week's additional
>use caused the Krylon to char, destroying the coil.

Ah, I feel vindicated. "The antenna worked . . ." Yes! But the Krylon failed. This brings me to another secret. I don't use Krylon. The only weatherproofing I use is a couple of layers of Mylar tape. Pretty good dielectric. Hasn't failed, discolored, unraveled, or anything in many years of having 400 watts pumped into it.

I will concede, though, that Mr. T had no problems with Krylon when he went to a superior coil design. In his case, certainly, the new coil must have been heating less than his old one. And his old one

was somewhat like the one I use.

What we need to do now is get Bob, NA4G, to come over with some of his field-strength meters and have a competition! I'm sure K9TA would win this one. The question is: by how much? If it's not too much, I'll stick with my "crummy" set up.

Once again, my hat is off to Mr. T for some most stimulating info.

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73 de Bob, K0KR

From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 17:45:54 1994
Date: Sun, 18 Sep 94 20:38:17 UTC
Message-Id: <1203@ki5sl.ampr.org>
From: ki5sl@ki5sl.ampr.org (Rick_Blank)
Subject: D104's

The availability of Astatic D104's is very much alive!

I have a recent catalog from:
Santa Fe Distributing, Inc.
9640 Legler Road
Lenexa, Kansas 66219-1291
Toll Free Order Line: 1-800-255-6595
Fax Number: 1-800-255-6596
Local Phone Number: 913-492-8288
Minimum \$50.00 order and they do ship C.O.D., I have had good luck with them and they have good prices on Diamond, Cush-Craft, Hy-Gain, Larsen, and some other manufacturers, but, they list several D104 things:

D104 "Silver Eagle".....	\$69.90
D104 "Night Eagle"	\$69.90
TUG9D104 Stand	\$58.90
MC320 Crystal mike cartridge.....	\$13.90
MC321 Ceramic mike cartridge.....	\$13.90
D104M6B	\$35.90

(this is a crystal element in a hand mike with a transistor amplifier, seems to have possibilities)

I've got 5 D104's with various stands, one's a "Silver Eagle", chrome base and head and they are very useful for trying to quell local QR-YL, especially after she rips the thing outta my hand and

applies it liberally to the top of my noggin....everything sounds like CW afterwards.....

From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 23:59:53 1994
Date: Sun, 18 Sep 1994 23:05:10 -0400 (EDT)
From: DUBE2@delphi.com
Subject: MC-40
Message-Id: <01HH9WI9X6W29C6UWJ@delphi.com>

Anyone know where one can obtain a working McIntosh MC-40?

73,
Dube Todd AB5AP <dube2@delphi.com>

From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 18:14:39 1994
Message-Id: <199409182055.NAA01818@olympus.net>
Date: Sun, 18 Sep 1994 13:56:01 -0800
From: philkeys@olympus.net (Phil Keys)
Subject: ME-11A/U Dummy load/Wattmeter info?

I recently bought a surplus ME-11A/U RF Wattmeter (16 and 60 W ranges) and dummy load (oil cooled) at the Livermore swap meet. I would appreciate any info about it. Is it good for both HF and VHF? On my TS530S it measures 10W on TUN and 30W output on 80 M CW. On my TH225 it measures 4.5W on 2M. I certainly expected higher output than 30W on my TS530S.

Thanks, this mailing list is great! Long may it live.

73

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From owner-boatanchors@gnu.ai.mit.edu Sun Sep 18 21:59:37 1994
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: Re. Top Band Queries
Date: Sun, 18 Sep 94 19:16 CDT
Message-Id: <E9IJ1643.E9IJ1653@mail.admin.wisc.edu>

to: boatanchors@gnu.ai.mit.edu

Further '60s vintage Top Band memories.

One of the fun things about 160 metres was transmitter hunts. Almost nobody went so far as to gear up with loops and the like, because there was a simpler approach.

To get an effective 160 direction finder all you needed was a cheap transistor radio. You put in 10 minutes work to (A) tweek the conversion oscillator trimmer until the high end of the dial hit 160, and (B) tweaked the antenna trimmer for maximum noise. The loopstick antennas in these sets were VERY sharp and would give you very clearly defined nulls to take bearings.

Surplus rigs were used sometimes in my area, but not too often. The ART-13 was probably the most often used, followed by the Navy version of the ARC-5 "Command" transmitter that went down to 2.1 MHz and was thus easily tweekable.

I was personally not too happy about a hamfest purchase I made. I got an old Johnson "500" that needed a lot of work, and didn't discover until I got home that the rig didn't cover 160. It fooled me because the VFO dial scale showed a 1.75 - 2.0 MHz band. It seems Johnson saved a few bucks on manufacturing costs by using the same VFO scale plate on the "500" that they were already using on the "Ranger", "Valiant", and "Navigator"! Why not, since the VFO itself is essentially identical in all four rigs?

One thing a lot of folks don't remember is that immediately after WW2 we lost all 160 metre privileges. The development of the LORAN-A system during the war caused the Government to withhold 160 after VJ Day; to replace it we were given the 15 metre band. Gradually, we were allowed back into 160 on a noninterference basis as a secondary user when it was discovered that the entire band wouldn't be needed for LORAN chains as had been thought previously.

The 160 metre band isn't a worldwide amateur allocation. Many governments allow amateur use on a piecemeal basis. For instance, the last I heard the government of Great Britain allowed amateurs a maximum power of 10 watts, on the condition that hams don't interfere with marine traffic in the English Channel.

The wierdest allocation I've heard of is in Japan. Japanese hams didn't get 160 privileges until the '60s or '70s, and when they did their allocation was something like 2 KHz wide, and the allocation was below 1800 KHz, our lower band edge! I don't know if this situation has changed or not.

Well, enough for now.

73's,

Tom, K9TA